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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,596	02/05/2001	David Mottier	202780US2	9258

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EXAMINER	
ABRAHAM, ESAW T	

ART UNIT	PAPER NUMBER
2133	11

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/775,596	MOTTIER ET AL.	
	Examiner	Art Unit	
	Esaw T Abraham	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Final rejection

Response to the applicant's amendment

********The examiner accepted the amended abstract.

********The new drawings submitted by the applicant on 12/11/03 are objected by the draftsperson (see the attached PTO 948 form).

Response to the applicant's argument

Applicants argument with respect to claims 10-29 filled in 12/11/03 have been fully considered but they are not persuasive. It is the examiner's conclusion that claims 10-29 are not patentably distinct or non-obvious over the prior arts (Rose in view Doetsch et al.) of record.

In response to the applicants' argument that the references fail to teach one transmission error based on a certain redundancy, However, Ross teach that after the stage of turbo-decoding, an error detection mechanism determines whether the data was received correctly and the error detection mechanism comprise a well known 16-bit CRC redundancy check code (see col. 5, lines 22-34). Therefore, the applicants' argument although acknowledged, has not been found to be convincing. Irrespective of how the term redundancy understood subjectively, the feature is understood by the examiner that an error correction techniques function include additional amounts of "redundant" information in the signal transmission from the originating device and this redundant information is often referred to as error correction code and further the redundant information is used to check the validity of the information as received at the receiving device. For example, parity checking, check summing, cyclic redundancy checking, forward error correction coding, are several of the more widely used, well known error correction methods. Therefore, in light of the above, the final rejection holds strong in view of the recited references.

In response to the applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicants relies are not recited in the rejected claims(s). Although the claims are interpreted in light of the specification, limitation from the specification is not read into the claims (See *in re Van Geuns,* 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

DETAILED ACTION

1. Claims 10 to 29 are presented for examination.

Information Disclosure Statement

3. The references listed in the information disclosure statement submitted on 05/07/01 and 02/13/02 have been considered by the examiner (see attached PTO-1449).

Drawing

4. The drawings are objected to because of the problems addressed in the attached PTO-948. Correction is required.

Claim objections

5. Claim 10 objected to because of the following informalities:

(a) Please change the term "in the transmitting" to "in the digital transmission" (in claim 10, line 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 10-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross (U.S. PN: 5,983,384) in view of Doetsch et al. (U.S. PN: 6,571,366).

As per claim 10, Ross substantially teach digital transmission method of error correcting type comprising turbo encoding source information using a parallel concatenation of first and second convolutional codes (col. 1, lines 8-14) whereby the turbo-encoding comprising first and second encoding steps, puncturing the first and second groups of code bits and storing in memory, turbo decoding the data samples corresponding to the first and second groups of code bits in at least two decoding stages and determining whether the transmitted code bits have been received in error (see claim 1). Ross further, teach the method of turbo-coding comprising the step of puncturing for deleting code bits according to a predetermined puncturing pattern, the step of de-puncturing function for inserting neutral values for the punctured bits (see claim 2). Furthermore, Ross teach the method of turbo-coding comprising the step of determining whether the code bit have been received in error comprises a CRC check code (see col. 3, lines 21-33 and claim 5). Ross did not explicitly teach a puncturing scheme step according to one parameter characteristic of transmission conditions. However, Doetsch et al. in an analogous art teach a digital transmission system and method for channel coding in a turbo coder at a transmitter end, utilizing a punctured turbo code with a variable (parameter) coding rate, wherein said coding rate is chosen as a function of a Quality of Service (QoS) (characteristic of transmission conditions) of a transmission channel which is one of the transmission channels, turbo decoding in a turbo decoder at a receiver end, requesting coded packets incorrectly sent by the receiver via a return channel, transmitting a portion of information suppressed by a puncturing of turbo code in a previous transmission (see col. 2, lines 49-60). Therefore, it would have been obvious to a person

having an ordinary skill in the art at the time the invention was made to include a parameter characteristics such as a quality of service of a transmission service as taught by Doetsch et al. for improving the quality of transmission. This modification would have been obvious because a person having ordinary skill in the art would have been motivated to do so because applying puncturing steps according to transmission characteristics would improve the performance of the system and heighten the decoding efficiency.

As per claim 11, Ross in view of Doetsch et al. teach all the subject matter claimed in claim 10 including Doetsch et al. teach parameter characteristics of the transmission conditions such as QoS (quality of service), BER (bit error rate) and FER (frame error rate) (see col. 3 and col. 7 last paragraph).

As per claims 12 and 14-16, Ross in view of Doetsch et al. teach all the subject matter claimed in claim 10 including Ross teach packet error detection mechanism (CRC) determines whether the data was received correctly and if a transmission error is detected, maintaining data samples corresponding to the first and second groups of non-punctured code bits in memory and transmitting at least a predetermined portion of the stored punctured code bits to the receiver, and then turbo-decoding in at least two stages by combining the data samples corresponding to the first and second groups of non-punctured code bits with data samples corresponding to the transmitted punctured code bits (see col. 3, lines 22-33 and claim 1).

Ross substantially teach digital transmission method of error correcting type comprising turbo encoding source information using a parallel concatenation (concatenation of simple codes referred to as elementary codes separated by interleaving, whereby elementary codes can be of

different types: RSC for convolutional turbo codes, or block codes such as hamming code, RS codes and BCH codes) of first and second convolutional codes (see col. 1, lines 8-14). Further, Doetsch et al. teach parameter characteristics of the transmission conditions such as QoS (quality of service), BER (bit error rate) and FER (frame error rate) (see col. 3 and col. 7 last paragraph).

As per claims 13 and 17-19, Ross in view of Doetsch et al. teach all the subject matter claimed in claims 10 and 11 including Ross teach packet error detection mechanism (CRC) determines whether the data was received correctly and if a transmission error is detected, maintaining data samples corresponding to the first and second groups of non-punctured code bits in memory and transmitting at least a predetermined portion of the stored punctured code bits to the receiver, and then turbo-decoding in at least two stages by combining the data samples corresponding to the first and second groups of non-punctured code bits with data samples corresponding to the transmitted punctured code bits (see col. 3, lines 22-33 and claim 1). Ross substantially teach digital transmission method of error correcting type comprising turbo encoding source information using a parallel concatenation (concatenation of simple codes referred to as elementary codes separated by interleaving, whereby elementary codes can be of different types: RSC for convolutional turbo codes, or block codes such as hamming code, RS codes and BCH codes) of first and second convolutional codes (col. 1, lines 8-14)

Further, Doetsch et al. teach parameter characteristics of the transmission conditions such as QoS (quality of service), BER (bit error rate) and FER (frame error rate) (see col. 3 and col. 7 last paragraph).

As per claims 20, 22 and 24, Ross in view of Doetsch et al. teach all the subject matter claimed in claims 10 and 12 including Rose teach a transmission method applied a coding scheme of turbo coding or parallel concatenated convolutional coding (see col. 1, lines 8-15) and an interleaving means (see fig. 1, element 18).

As per claims 21, 23 and 25, Ross in view of Doetsch et al. teach all the subject matter claimed in claims 10, 11, and 13 including Rose teach a transmission method applied a coding scheme of turbo coding or parallel concatenated convolutional coding (see col. 1, lines 8-15) and an interleaving means (see fig. 1, element 18).

As per claims 26 and 28, Ross in view of Doetsch et al. teach all the subject matter claimed in claims 10, and 12 including Ross teach the step of turbo decoding comprising a de-puncturing function for inserting neutral values for the punctured bits (see claim 2). Ross further, teaches in the first stage of turbo decoding, data selector chooses A when the information has been punctured and chooses B when received data samples are available (see figure 3 and col. 3, lines 6-20).

As per claims 27 and 29, Ross in view of Doetsch et al. teach all the subject matter claimed in claims 10, 11 and 13 including Ross teach the step of turbo decoding comprising a de-puncturing function for inserting neutral values for the punctured bits (see claim 2). Ross further, teaches in the first stage of turbo decoding, data selector chooses A when the information has been punctured and chooses B when received data samples are available (see figure 3 and col. 3, lines 6-20).

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US PN: 6,298,461 Tong et al.

US PN: 6,247,158 Smallcomb

9. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (703) 305-7743. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone numbers for the organization

where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Esaw Abraham

Esaw Abraham

Art unit: 2133

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